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A high-level monthly briefing on operations and activities at the U.S. Department of Energy's Idaho National Engineering and Environmental Laboratory – Home of Science and Engineering Solutions. Work at the lab advances the Department's strategic goals in the areas of energy, environment, defense and science.

■ ENERGY – Lab Completes Nationwide Hydropower Review

The INEEL has assessed the hydropower potential of the United States as a first step in a low-power hydropower project funded by the U.S. Department of Energy. The innovative study was performed in conjunction with the U.S. Geological Survey. State-of-the-art digital elevation models and geographic information system tools were used to assess the hydropower potential of a mathematical analog of every stream in the country. The study estimated that there is approximately 300,000 MW of hydropower potential (annual average power) nationwide, of which approximately 60 percent remains undeveloped and is not excluded from development by federal statutes or policies. Idaho ranks third in the country with an "available" hydropower potential of 12,000 MW – exceeded only by Alaska and Washington state.

■ ENVIRONMENT – Waste Retrieval Project Completed Early

Crews at the INEEL have successfully completed the Glovebox Excavator Method project, removing 454 drums of waste from the one-acre Pit 9 site more than eight months ahead of the schedule agreed upon in 2002 by DOE, the State of Idaho and the U.S. Environmental Protection Agency. As part of its accelerated cleanup commitment, DOE is currently discussing with the State of Idaho and EPA options for performing additional waste retrieval and other environmentally protective actions in other portions of the 97-acre Subsurface Disposal Area.

■ DEFENSE – Wireless Test Bed Records Banner Year

The INEEL Wireless Test bed will celebrate its one-year anniversary in April. The test bed was built to offer commercial and government clients large-scale, independent, end-to-end testing of next-generation wireless communication infrastructures including cellular, land mobile radios and wireless network systems. In the past year, the test bed has provided distributed antenna testing for AT&T, in which the telecommunications giant was able to test five commercial systems head-to-head. Other tests included antenna performance characterization and smart antenna evaluations for wireless local area networks. The Department of Homeland Security's National Communications System is interested in a broad suite of test bed activities, including free-space optics performance in 9-11 environments of fire, heat and particulates for diversity routing; priority routing of cell calls in emergencies; and diversity routing for voice and data links during events or building evacuations.

■ SCIENCE – Top DOE Official Visits Idaho High Schools

During a mid-month trip to Idaho, DOE's Bill Magwood, director of the Office of Nuclear Energy, Science and Technology, spoke with high school students about the promise of a hydrogen economy, and the potential of nuclear energy to play a key role in the highly efficient production of hydrogen. Addressing students at Boise's Timberline High School and at Idaho Falls High School, Magwood explained that the hydrogen fuel cell process can produce electricity to operate cars and other vehicles and devices with no pollution. "The only byproduct is pure water," he said, explaining that fuel-cell technology could someday replace the gasoline-fueled internal combustion engines that power the cars and trucks of today. "No gasoline means no imported oil and no problems with pollution or greenhouse gas emissions from automobiles."

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